WASHINGTON STATE DEPARTMENT OF
Natural Resources
Jennifer M. Belcher - Commissioner of Public Lands
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STANDARD RECLAMATION PLAN (Form SM-8A)

DO I NEED TO FILE A RECLAMATION PLAN?

The Surface Mining Act (RCW 78.44), as amended in 1993, requires that you file a reclamation plan for:

Mines more than three acres in size

You must file a reclamation plan for mines in which three or more acres (including highwalls, pit floors, stockpiled areas, side-cast areas, and processing-plant sites) will be or have been disturbed by mining.

A disturbed area is any place where operations in preparation for or during surface mining physically disrupt, cover, compact, move, or otherwise alter the characteristics of soil, bedrock, or topography that existed prior to such operations. Disturbed areas may include, but are not limited to: working faces, excavated water bodies, pit floors, processing plant sites, stockpile sites, spoil-pile sites, and equipment staging areas.

Disturbed areas do not include mine access roads unless these roads have characteristics of topography, drainage, slope stability, or ownership that make reclamation necessary.

Mines with working faces higher than 30 feet and steeper than 45o

You must file a reclamation plan for mines with working faces that are both higher than 30 feet and steeper than 1 foot horizontal to 1 foot vertical (45^0), unless there is a preexisting natural hazard in the area.

Note: Lands that have already been reclaimed to the standards given in RCW 78.44 should not be included when calculating the disturbed-area or face-height thresholds.

This form will help you by providing a checklist of the information required. Even so, it is not uncommon for applicants to have to modify their original plan before it is acceptable to the Department.

Note: When signed by the applicant and approved by the Department of Natural Resources, this document and the associated maps, cross sections, and other attachments will be the approved reclamation plan for this permit that the permit holder must follow for the mine site. Variation from the approved reclamation plan may require that a new plan be submitted to the Department for approval.

Please answer all questions legibly in ink and sign.

NAME OF APPLICANT/PERMIT HOLDER(S) (Type or print in ink)
This will be the name(s) on the permit and performance security.

MAILING ADDRESS

Telephone

SURFACE OWNERSHIP
Give names, addresses, and signatures of all individuals with possessory interest in land. (Continue on another sheet if more space is needed.)

NAME OF MINE

Street address and milepost of surface mine

Distance (miles)	Direction from	Nearest community

COUNTY _____

No attachments will be accepted. Legal description of permit area:

1/4	1/4	Section	Township	Range

MINING AREA TO BE DISTURBED
(Include all acreage to be disturbed by mining, reclamation setbacks, and associated activities during the life of the mine.)

In the following 36 months _____ acres

Total during the life of the mine
(This should be the same number as on form SM-2.) _____ acres

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PLANNING FOR RECLAMATION

Reclamation of a site must meet or exceed the minimum reclamation standards required by the Washington State Surface Mining Act (RCW 78.44). The primary purpose of the Act is to insure that segmental reclamation occurs promptly and properly for all permitted mines. Each requirement of the reclamation law may not fit every mine. The law provides some latitude for variance. If you have a good reclamation idea or a unique operation problem, see the reclamation officer at your Department of Natural Resources Region Office.

WHAT IS A RECLAMATION PLAN?

A reclamation plan can be thought of as both a financial planning document and a contract that defines the topography, drainage, and vegetation of the site after reclamation is complete. This plan describes the permit holder's strategy to achieve acceptable reclamation at the lowest possible cost and establishes an economic limit of production for each site based on the area available for mining and the grade of the deposit. It also identifies and addresses mitigation of potential environmental impacts, such as gullying of impermeable clays, for which the permit holder is liable; establishes a segmental sequence of mining and reclamation that will avoid unnecessary earth moving; and identifies equipment needed.

The plan should provide a schedule for initiating reclamation as soon as possible on parts of the site where surface mining has been completed. Reclamation activities, to the extent feasible, should be conducted simultaneously with surface mining, and, in any case, reclamation must be completed on any segment within two years of abandonment of mining on that segment (except as provided for in a segmental reclamation agreement).

A reclamation plan should be simple, practical, and easy to implement. It should be flexible, taking into account the potential for unanticipated changes in the geology and the market that will affect reclamation. The plan should have provisions for quality reclamation even if mining to depletion never occurs.

Form SM-8A and the required maps and cross sections are adequate documentation for most mines. In some instances, separate reports, such as an expanded checklist, a hydrogeologic evaluation, or an environmental impact statement, may be necessary.

When signed by the applicant/permit holder(s) and landowner(s) and approved by the Department of Natural Resources (DNR), this document and the associated maps, cross sections, and other attachments will be considered the approved reclamation plan for this permit, which the permit holder must follow for the mine site. Significant variations from the approved reclamation plan require that a new reclamation plan be submitted for approval. Managers and senior equipment operators must be familiar with the reclamation obligations to which the permit holder has committed.

The checklist below will help you be sure that nothing is forgotten. Neatness counts! If a plan is not neat and legible and in ink, it will be rejected.

CHECKLIST OF MINIMUM RECLAMATION STANDARDS

GENERAL INSTRUCTIONS

Please check the appropriate boxes and fill in the blanks below. Where required, please explain in the space provided. If the question does not apply to your mine, please write "NA" for "not applicable" to let us know you have read the question. If additional space is needed, write "(Continued)" in the blank and restate the question and continue your answer on a separate sheet, or write "See attached report" in the blank and attach a report. Any unanswered questions may result in this form being returned to you unapproved.

MINE TYPE

Type of mine: ☐ Pit ☐ Quarry

Material(s) to be mined:

☐ Sand and Gravel ☐ Clay ☐ Limestone
☐ Rock or Stone ☐ Metal ☐ Silica

☐ Other _____

Deposit type:

☐ Glacial ☐ Talus ☐ Unknown
☐ River Flood Plain (Alluvial) ☐ Bedrock
☐ River Channel Deposits ☐ Lode

☐ Other _____

HYDROLOGY

Water table depth is _____ feet below sea level, or

☐ The Surface, or ☐ Other _____

Annual fluctuation of water table is from _____ feet

on _____ to _____ feet on _____
(date) *(date)*

Direction of ground water flow: _____

Is the aquifer perched? ☐ Yes ☐ No

Is the shallowest aquifer: ☐ Confined ☐ Unconfined

The site will be mined: ☐ Wet ☐ Dry ☐ Both

Explain

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

If any of the following conditions apply, a hydrogeologic evaluation that outlines measures to protect against or mitigate avulsion, erosion, and damage to fisheries may be necessary.

This site is in a:

☐ River or Stream Channel ☐ Sole Source Aquifer
☐ Critical Aquifer Recharge Area ☐ Special Protection Area
☐ Wellhead Protection Area
☐ Public Water Supply Watershed
☐ Designated Aquifer Protection Area
☐ 100-Year Flood Plain

Hydrogeologic Evaluation is attached ☐ Yes ☐ No

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Explain:

SUBSEQUENT LAND USE

Subsequent land use:

☐ Industrial ☐ Forestry ☐ Wetlands and Lakes
☐ Agricultural ☐ Residential
☐ Other

Subsequent land use is compatible with county or municipal comprehensive plan? ☐ Yes ☐ No

County or Municipality Approval for Surface Mining (SM-6) is attached? ☐ Yes ☐ No

If any answers are no, explain:

Note: Approval of the reclamation plan and (or) Form SM-6 does not vest the subsequent land use. Subsequent use may be changed by the permit holder with the written approval of local government up until the time reclamation is complete and the reclamation permit is terminated. Change of subsequent use by the permit holder may require submission of revised Forms SM-6 and SM-8A and a State Environmental Policy Act (SEPA) checklist.

SITE PREPARATION

Permit and Disturbed Area Boundaries

The permit holder should delineate the permit boundaries and maximum extent of disturbance and setbacks with clearly visible permanent markers. The permit holder must maintain the boundary markers until the termination of the reclamation permit.

Boundary of the permit area has been marked with permanent boundary markers? ☐ Yes ☐ No

Boundaries of areas to be disturbed by mining (permit area minus setbacks) have been marked with permanent boundary markers? ☐ Yes ☐ No

If no, explain:

Saving Topsoil and Overburden for Reclamation

Prior to any surface mining operation, the permit holder shall carefully stockpile all available topsoil and overburden in stable storage areas for use in later reclamation or immediately move them to reclaim adjacent depleted segments. Topsoil needed for reclamation may not be sold or given away or removed or mixed with sterile soils. Topsoil should not be used for screening berms required by county or municipal government because this would preclude its timely use for reclamation.

Depth of topsoil is _____ feet.

Depth of subsoil is _____ feet.

Depth to bedrock is _____ feet.

Topsoil will be salvaged where possible? ☐ Yes ☐ No

If no, explain:

Topsoil and overburden will immediately be moved to reclaim adjacent depleted segment? ☐ Yes ☐ No

If no, explain:

Topsoil and overburden storage areas will be beyond the limits of mining but positioned for the shortest possible downhill transport during reclamation? ☐ Yes ☐ No

If no, explain:

Before materials are moved, vegetation will be cleared and drainage planned for the storage areas? ☐ Yes ☐ No

If no, explain:

Storage areas will be stabilized with vegetation if materials will be stored more than one season? ☐ Yes ☐ No

If no, explain:

Permanent Setbacks and Screens

Permanent setbacks and screens help control erosion, and provide seed sources for reclamation. Screens should consist of native vegetation and (or) topography. Permanent setbacks are not required for pits (unconsolidated deposits) but may still be useful if the mine has close neighbors or adjacent scenic resources, and setbacks may be required by local government. Permanent setback and screen material should not be mined or used for reclamation. The minimum permanent setback for quarries (consolidated deposits) permitted after June 30, 1993, is 30 feet.

The permanent setback for this site will be _____ feet wide.

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Reclamation Setbacks

If the cut-and-fill method will be used to restore slopes rather than mining to a final slope, a setback from the property boundary or permanent setback (where used) is necessary to insure sufficient material for reclamation. The reclamation setback for pits (unconsolidated deposits) permitted after June 30, 1993, must be at least equal to the maximum anticipated height of the adjacent working face. (A setback equal to the working face will provide only enough material for a 2:1 slope. To meet the standards of the law for slopes of between 2:1 and 3:1, a larger setback is generally required.)

Maximum depth of the mine will be _____ feet.

The reclamation setback (material that can be used for reclamation) for this site will be _____ feet wide.

Reclamation setback has been marked with permanent boundary markers? ☐ Yes ☐ No

If no, explain:

_____

_____

_____

_____

This site will not have a reclamation setback because a backfilling plan is attached? ☐ Yes ☐ No

This site will not have a reclamation setback for the following reason(s):

_____

_____

_____

_____

Setbacks to Protect Streams and Flood Plains

Generally no mine may be located in or near streams or on 100-year flood plains unless a Shoreline Permit has been issued. Setbacks from streams and flood plains should be at least 200 feet wide. Wider setbacks may be necessary for stream and flood-plain stability and to prevent breaching of the pit at a later date.

A stream setback of at least 200 feet has been marked with permanent boundary markers? ☐ Yes ☐ No

A setback of at least 200 feet from the 100-year flood plain has been marked with permanent boundary markers? ☐ Yes ☐ No

Explain:

_____

_____

_____

_____

_____

_____

Copy of Shoreline Permit from the Department of Ecology and (or) local government is attached? ☐ Yes ☐ No

Hydraulic project approval from the Department of Fisheries and Wildlife is attached? ☐ Yes ☐ No

Conservation Setbacks

In special cases, setbacks may be necessary to protect unstable slopes, wildlife habitat, or other sensitive areas or to limit turbid water discharge from areas that will be disturbed.

Conservation setbacks are necessary for:

☐ Unstable Slopes ☐ Wildlife Habitat ☐ Water Quality

☐ Other _____

Explain:

_____

_____

_____

_____

_____

_____

Conservation setbacks have been marked with permanent boundary markers? ☐ Yes ☐ No

SEGMENTAL RECLAMATION

The permit holder must reclaim each segment of the mine within two years of completing mining on that segment and (or) in the manner described in this reclamation plan or a separate segmental reclamation agreement. Segmental reclamation helps establish self-sustaining vegetation, especially native pioneer vegetation, and promotes stable slope conditions and improves the water quality and appearance of this site.

Permit area has been divided into segments for mining and reclamation purposes? ☐ Yes ☐ No

If no, explain:

_____

_____

_____

Each segment is smaller than seven acres, has less than 500 linear feet of working face, and has characteristics that make is feasible to treat it as a unit? ☐ Yes ☐ No

Explain:

_____

_____

_____

_____

A schedule for the sequence of mining and segmental reclamation of each segment of a Segmental Reclamation Agreement is attached? ☐ Yes ☐ No

If no, explain:

_____

_____

_____

_____

MINING PRACTICES TO FACILITATE RECLAMATION

Removal of Vegetation

Vegetation will be removed sequentially from areas to be mined to prevent unnecessary erosion? ☐ Yes ☐ No

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If no, explain:

Small trees and other transplantable vegetation will be salvaged for use in revegetating other segments? ☐ Yes ☐ No

If yes, give details:

Wood and other compactible debris should not be buried; it should be recycled, removed, burned, or chipped. If wood and other compactible debris will be buried, solid-waste disposal and land-use permits must be obtained.

Wood and other compactible debris will be:

☐ Recycled ☐ Chipped ☐ Buried
☐ Removed ☐ Burned ☐ Used to synthesize topsoil or mulch
☐ Other

Solid-waste disposal, burning, and land-use permits are attached? ☐ Yes ☐ No

Some wood and other debris will be salvaged and used for fish and wildlife habitats? ☐ Yes ☐ No

If yes, give details; If no, explain:

Erosion Control

Erosion control measures are generally necessary during mining to avoid severe erosion or loss of top soil. Each site must be evaluated on an individual basis, and multiple techniques to control erosion may be necessary. The Department of Ecology requires discharge permits for most surface mines. In addition, some mines at higher elevations should plan for the effects of rain-on-snow events on slope stability and erosion.

Pit floor will slope at gentle angles toward highwall, sediment retention pond, or proper drainage? ☐ Yes ☐ No

If yes, give details; If no, explain:

Revegetation, sheeting, and (or) matting will be used to protect areas susceptible to erosion? ☐ Yes ☐ No

If yes, give details; If no, explain:

Temporary water-control systems used for erosion control will:

Divert clean water around the pit? ☐ Yes ☐ No

Trap sediment-laden runoff before it enters a stream? ☐ Yes ☐ No

Result in essentially natural conditions of volume, velocity, and turbidity? ☐ Yes ☐ No

Be designed for 25-yr, 24-hr peak event? ☐ Yes ☐ No

Be removed for reclaimed? ☐ Yes ☐ No

If any answers are no, explain:

Ditches, flumes, and (or) armored channels will be established to prevent erosion of setbacks on neighboring properties? ☐ Yes ☐ No

If yes, give details; If no, explain:

Stormwater conveyance ditches and channels will be lined with vegetation or riprap? ☐ Yes ☐ No

If yes, give details; If no, explain:

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Natural and other drainage channels will be kept free of equipment, wastes, stockpiles, and overburden? ☐ Yes ☐ No

If no, explain:

RECLAMATION TOPOGRAPHY

The goal of reclamation is to create stable, usable land. New drainages should be established, and contours should blend smoothly with adjacent offsite topography. To promote slope stability and revegetation, slopes should generally vary between 2.0 and 3.0 feet horizontal to 1.0 foot vertical or flatter. Slopes steeper than 1.5 feet horizontal to 1.0 foot vertical are not acceptable for pits except in limited areas to tie in to offsite topography. The reclaimed mine site should appear natural - that is, slopes should be sinuous and right-angle corners should be eliminated by rounding. Sinuous slopes can be formed either by mining to the prescribed angles, which is generally more cost effective, or by using athe cut-and-fill method. Backfilling is not allowed unless prior approval is obtained from DNR.

Final Slopes

Slopes will vary in steepness? ☐ Yes ☐ No

If no, explain:

Slopes will have a sinuous appearance in both profile and plan view? ☐ Yes ☐ No

If no, explain:

Slopes will have no large rectilinear (that is, right angle or straight, planar) areas? ☐ Yes ☐ No

If no, explain:

Where reasonable, tracks of the final equipment pass will be preserved and oriented to trap moisture, soil, and seeds and to inhibit erosion? ☐ Yes ☐ No

If no, explain:

Slope Requirements for Pits and Waste Rock Dumps

For unconsolidated materials (such as sand and gravel pits, waste rock dumps, etc.), final slopes must meet the following requirements:

Slopes will vary between 2.0 and 3.0 feet horizontal to 1.0 foot vertical or flatter, except in limited areas where steeper slopes are necessary to create sinuous topography and control drainage? ☐ Yes ☐ No

If no, explain:

For pits, slopes will not exceed 1.5 feet horizontal to 1.0 foot vertical except as necessary to blend with adjacent natural slopes? ☐ Yes ☐ No

Give details:

Slope Requirements for Quarries and Hardrock Metal Mines

For consolidated rock, such as basalt, andesite, granite, limestone, or quartzite, a vertical highwall face may be acceptable. There is no prescribed angle or height.

Some slopes will be reclaimed as cliffs? ☐ Yes ☐ No

If yes, explain by checking the approriate box below:

- ☐ Slopes steeper than 1.0 foot horizontal to 1.0 foot vertical are an acceptable subsequent land use as confirmed on Form SM-6.
- ☐ Cliffs are indigenous to the immediate area and already present a threat to human life. Photo attached to document presence of cliffs.
- ☐ Geologic or topographic characteristics of the site preclude slopes being reclaimed at a flatter angle and are an acceptable subsequent land use as confirmed on Form SM-6.

Explain:

Selective blasting will be used to remove benches and walls and to create chutes, buttresses, spurs, screen slopes, and rough cliff faces that appear natural? ☐ Yes ☐ No

If yes, give details; If no, explain:

Reclamation Permit/Application No. _____